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(54) ULTRASONIC CONVERTER ARRAY

(57)Abstract:

PURPOSE: To reduce the number of converter elements by increasing the (x) coordinate of the central point of a converter element outward between the central points of adjacent converter elements so as to keep the definite integral of a function $f(x)$ over (x) is constant.

CONSTITUTION: A row (i) and a column (j) of an $M \times N$ matrix located in an orthogonal coordinate system provided with an origin S, (x) and (y) axes are formed by the converter element T_{ij} . The row (i) is extended in the (x) direction and the column (j) is extended in the (y) direction. Intervals between the centers of the adjacent converter elements, e.g. (M_{ij} and M_{ij+1}), (M_{ij+1} and M_{ij+2}), and (M_{ij+2} and M_{ij+3}) monotonically increases outward.

Consequently, a function $f(x)$ for the row (i) and a function $g(y)$

for the column (j) may be selected such that they are,

respectively an even function with respect to the center S of, symmetry i.e., $f(x)=f(-x)$ and $g(y)=g(-y)$, and decreases strictly monotonously with the increase in the absolute values $|x|$ and $|y|$.

